

30 SEPTEMBER 2017 QUARTERLY REPORT**HIGHLIGHTS**

- Uranium leaching aligned with historical results and in excess of PFS processing plant design
- Ion Exchange pilot plant demonstrates excellent performance of the selected resin on Honeymoon conditions
- Ion Exchange pilot plant commenced to demonstrate benefits of higher feed tenors
- Dr Dennis Stover completes independent and highly positive review, stating the IX resin is a “major breakthrough for commercial development of Honeymoon”
- High-grade wellfield achieving targeted uranium tenor
- Appointment of leading Strategic and Marketing Adviser, Ms Sashi Davies
- Successful \$3 million capital raise completed

HONEYMOON URANIUM PROJECT

Completion of the highly successful Preliminary Feasibility Study (“PFS”), confirmed the economic robustness of the Honeymoon Uranium Project as highlighted by:

- Low capital outlay optionality for near term production
- Low All-in-Sustaining Costs of US\$23.90 / lb U3O8 equivalent over Life of Mine
- Low direct operating cost (at mine gate) of US\$15.60 / lb U3O8 equivalent
- Significant potential for economic upside with further resource expansion and life of mine extension

The foundation for delivering these impressive results is based on restarting the operation with existing Solvent Exchange (“SX”) facilities (modified to achieve nameplate throughput) in conjunction with constructing an Ion Exchange (“IX”) plant. IX is the dominant recovery process for In-Situ Recovery (“ISR”) mining world-wide due to its lower operating and capital costs.

IX chemistry is very similar to SX, with the exception that the extractant is associated with a resin bead rather than organic liquor. Processing is the same with uranium loading onto the bead and then being stripped off followed by precipitation, filtration and drying. The benefits of IX are that the resin can treat lower grade solutions more efficiently.

In addition, the PFS has also highlighted the upside associated with further increased uranium feed tenors from the well-fields. These increases can be achieved by optimised leach conditions, improved wellfield design and possibly utilising a solution stacking concept.

Both the IX process, resin selection, targeted uranium tenors and wellfield management are all being tested during the third quarter’s primary Company focus of the Field Leach Trial (“FLT”), a critical technical validation exercise for the Definitive Feasibility Study (“DFS”).

FIELD LEACH TRIAL

On 17 August 2017, the Company announced the successful completion of the construction and official commencement of the FLT, seeking to achieve:

- Improved leaching chemistry, resin selection and uranium recovery;
- Verify ion exchange performance on real leach liquor;
- Confirm pregnant liquor tenors and production rates;
- Generate information for improved design and cost estimates; and
- Provide necessary plant and wellfield technical data for the Definitive Feasibility Study.

The construction, pre-commissioning and testing of the various system was completed on 10 August 2017 and continuous operation with groundwater of the E3 pattern commenced on 11 August 2017.



As the FLT is such an integral technical validation step for Honeymoon the Company appointed a leading international ISR uranium expert, Dr Dennis Stover, to consult and provide an independent and objective analysis of results and pilot plant performance, as subsequently announced to the ASX.

Overwhelming stakeholder support also continues to be received from the South Australian government, ANSTO, leading technical consultants and of course the operational workforce.

On 4 October 2017, the Company announced that the operation of the FLT and IX pilot plant at its Honeymoon continued to deliver impressive results. The IX pilot plant had reached a stable steady-state of operation with the first campaign underway. The IX pilot plant had performed exceptionally well, satisfying key technical validation

steps during the early commissioning stages on real leach liquor, even when low-grade feed solutions were being treated.

On 26 October 2017, the Company announced that the operation of the FLT and IX pilot plant was providing excellent data that confirms the assumptions made in the PFS. Results clearly indicate uranium contained within the Honeymoon deposit can be leached, and as historically demonstrated by recovery data (335 tonnes of recovered uranium), confirming that the recovery of uranium from underground is achievable.

Furthermore, the leach results had achieved the base case requirements and revised leaching conditions are now being tested to confirm if these results can be further improved upon. The IX pilot plant operating conditions are now also being modified to test further upside possibilities.

Boss has achieved the targeted uranium tenors from the wellfields while continuing to demonstrate excellent performance of the selected resin on Honeymoon type solutions. Attaining these desired outcomes is a fantastic achievement and successfully satisfies the core objectives of trial. Further testing of leach conditions will now be performed to determine potential upside with improved processes.

The program remains on schedule for completion in November 2017.



Dr Dennis Stover

A chemical engineering professional by background, Dr Dennis Stover has extensive experience in enhanced energy production and utilization at levels ranging from basic fuel cells R&D to commercial ISR uranium operations.

Formal feedback from Dr Stover has been very encouraging and he has provided further insight into overall strategies for the Project and identified other process areas that may be improved upon. Specifically relating to the FLT and IX pilot plant he stated the following:

1. The Field Leach Trial as planned is a well-designed program which addresses the key issue which has limited past commercial development efforts at Honeymoon; namely, the inability to efficiently recover dissolved uranium from well field lixivate.
2. Laboratory testing which led to the identification of an ion exchange resin which appears to be highly selective for uranium recovery even from lixiviates with very high levels of total dissolved solids is a major breakthrough for commercial development of Honeymoon. The FLT is the next critical step in verifying the validity of these laboratory findings.
3. Ongoing FLT activities as observed at the Honeymoon site are consistent with the original FLT plan. The operating team is intently monitoring Trial parameters and results. Timely adjustments to operational conditions are being implemented as dictated by observed Trial results.
4. Execution of the FLT is excellent.

Appointment of Strategic Adviser – Ms Sashi Davies

On 27 July 2017, the Company was pleased to announce the appointment of renowned international uranium expert Ms Sashi Davies as Strategic Adviser to strengthen and advance the Company's marketing, pricing and sales strategy for the Honeymoon Uranium Project.

Ms Davies has over 35 distinguished years of experience in the international uranium sector with extensive marketing expertise and an in-depth uranium knowledge base, having developed long-lasting relationships with international utilities and off-takers.

Based in Europe, Ms Davies will provide the Company with an important presence in the northern hemisphere and in close proximity to major uranium utilities.

Ms Davies served the past five years with the CGN Group and from 2014 to June 2017 as General Manager of CGN Global Uranium Ltd. Its principal shareholder, China General Nuclear Power Corporation ("CGN"), is the largest nuclear power operator in China and the largest nuclear power constructor worldwide. Prior to this role Ms Davies was Head of Marketing for Extract Resources Ltd, which was the subject of a CGN corporate transaction in 2012 valued at US\$2.2 billion for its majority shareholding in the world class Husab uranium mine in Namibia, one of the largest mining and processing uranium projects in the world.

During this period Ms Davies formed strong and successful working relationships with both the Chairman and the Managing Director of Boss, Messrs Mark Hohnen and Duncan Craib.

Successful \$3 Million Capital Raise

On 9 August 2017, the Company was pleased to announce the successful completion of a placement of 60 million ordinary shares to raise \$3 million (before costs) at an issue price of \$0.05 per share. The placement was made to new and existing sophisticated and institutional investors and within the Company's existing 15% placement capacity pursuant to Listing Rule 7.1 and 10% placement capacity pursuant to Listing Rule 7.1A.

Funds raised from the placement will be applied to advancement of activities at the Honeymoon Uranium Project, the payment of a promissory note due this to year to the vendor of the Honeymoon Project, and to general working capital.

Burkina Faso Gold Assets

Teranga Gold Corporation ("Teranga") (TSX: TGZ) has an earn-in agreement on the Golden Hill and Gourma Gold Projects with Boss, pursuant to the following salient terms of the joint venture:

- Teranga currently owns 51% interest in the Golden Hill and Gourma Gold Projects;
- Teranga to sole manage the joint venture and fund all exploration on the projects up to the completion of a DFS and Decision to Mine;
- Boss to have a free carried interest to completion of a DFS and decision to mine;
- On delivery of the DFS Teranga's interest in the joint venture will increase to 70%;
- Teranga has the right to acquire an additional 10% in the joint venture for A\$2.5 million;
- Upon completion of the DFS but prior to a Decision to Mine, Boss may elect to convert the remainder of their interest to a 1.5% Net Smelter Return, otherwise Boss shall be free carried to a decision to mine and will then be required to contribute on a pro rata basis; and
- Pre-emptive rights stipulated should a third-party offer exist.

Teranga has been regularly disclosing results of its recent drilling at the Golden Hill Gold Project. The announcements confirmed early-stage drilling continues to yield high-grade, near-surface oxide gold mineralization at its Golden Hill property in Burkina Faso, West Africa. For full details of exploration results, please see ASX announcements dated 25 July and 14 September 2017.

The Golden Hill property is comprised of three adjacent exploration permits covering 468km² located in southwest Burkina Faso in the central part of the Houndé Greenstone Belt. This belt hosts a number of high-grade gold discoveries, including the Siou, Yaramoko and Houndé deposits, the latter property being contiguous with Golden Hill. To the south of Golden Hill is another large land position where active exploration programs are well underway. All of the Golden Hill prospects drilled to-date are located approximately 5 kilometres from a central point.



For further information please contact:

Duncan Craib Chief Executive Officer: +61 (8) 6143 6730

Competent Persons' Statements

The information in this report that relates to Exploration Results and Mineral Resources for the Honeymoon Project post acquisition by Boss Resources Ltd is based on information compiled by Dr. M. Abzalov, who is a Competent Person according to the JORC 2012 Code. Dr. M. Abzalov is a Fellow of the AusIMM. He has sufficient experience in estimation Resources of uranium mineralisation, and have a strong expertise in the all aspects of the data collection, interpretation and geostatistical analysis to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves'. Dr. M. Abzalov is employed as a director of Boss Resources Ltd. Dr. M. Abzalov consents to the inclusion in the report of the matters based on their information in the form and context in which it appears. This information was initially reported to the ASX on 20 January 2016, 6 April 2016, 14 June 2016 and 15 March 2017 and has not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Cautionary Statement concerning Preliminary Feasibility Study results including Inferred Resources

Boss Resources (the "Company") has concluded that it has a reasonable basis for providing the forward looking statements and production targets discussed in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and in Appendix I and all material assumptions are disclosed in this document and in the JORC table disclosures of the relevant Resource Statements. The detailed assumptions



regarding the Resources are outlined in the Company's announcements dated 20 January 2016, 8 April 2016, 14 June 2016 and 15 March 2017.

This announcement has been prepared in accordance with the JORC Code (2012) and the ASX Listing Rules. The Company advises that the Preliminary Feasibility Study results, Production Targets and any Financial Information contained in this announcement are preliminary in nature as the conclusions are in-part based on low-level technical and economic assessments, and are insufficient to support the estimation of Ore Reserves or to provide an assurance of economic development at this stage. There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised. The outcomes of the Preliminary Feasibility Study however provide a reasonable basis for the Company to release the results whilst not providing an assurance of economic development at this stage. This is based on the current mining schedule indicating that for the first 2 years of production all of the material can be sourced from the Measured & Indicated Resources. Further to this 63% of production from Years 3 to 7 can be sourced from Measured & Indicated Resources for a total of 68 percent Measured & Indicated Resources over LOM. If the Inferred Resources are excluded, the economic analysis still forecasts a positive financial performance. The Company is therefore satisfied that the use of Inferred Resources is not the determining factor in overall Project viability and that it is reasonable to include the Inferred Resources in the PFS.

The Australian Securities and Investments Commission (ASIC) released Information Sheet 214, which concerns forward-looking statements by mining and resource companies (INFO 214). One of the matters raised is that forward-looking statements should only be made if the entity has reasonable grounds for concluding that funding will become available to the entity as and when required by the project's development or production schedules. Additional funding will be required by Boss Resources to bring the Project into full production stage. The original Honeymoon plant with a design capacity of 0.88Mlbs U3O8 is currently on care and maintenance and is capable of being restarted with minimal capital expenditure. Boss has a current market capitalisation of ~A\$50 million and it has successfully raised ~A\$14.5 million over the last 18 months which is in line with the required re-start capital of US\$10 million.

The Pre-Feasibility Study is based on material assumptions outlined in this announcement. Whilst the Company considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Pre-Feasibility Study will be achieved. Investors should note that there is no certainty that the Company will be able to raise the amount of re-start capital or additional funding (should it be required) for the Project when it is needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares. It is also possible that the Company could pursue other value realisation strategies such as a sale, partial sale or joint venture of the Project. If it does, this could materially reduce the Company's proportionate ownership of the Project.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Pre-Feasibility Study.

The Board confirms that the results from the Pre-Feasibility Study are positive and that this justifies the Company committing to the next stage of exploration and development by progressing through to the Definitive Feasibility Study.

Appendix 1

The following information is provided pursuant to Listing Rule 5.3.3 for the quarter ended 30 September 2017.

SCHEDULE OF MINING TENEMENTS

Tenement Name	Location	Licence Number	Interest
Boutouanou	Burkina Faso	2011/11/410	49% (TGZ farming in)
Diabatou	Burkina Faso	2011/11/409	49% (TGZ farming in)
Tyara	Burkina Faso	2011/11-159	49% (TGZ farming in)
Foutouri	Burkina Faso	2011/11-160	49% (TGZ farming in)
Baniri	Burkina Faso	2009/09-060	49% (TGZ farming in)
Intiedougou	Burkina Faso	2009/09-061	49% (TGZ farming in)
Mougue	Burkina Faso	2009/09-062	49% (TGZ farming in)
Kankandi	Burkina Faso	10/142/MCE	49% (TGZ farming in)
Tyabo	Burkina Faso	10/144/MCE	49% (TGZ farming in)
Skogtrask Project	Sweden	Skogtrask nr.3	100%
		Palange nr.1	100%
Lilltrask Project	Sweden	Lilltrask nr1, 2 and 3	100%
Yarramba	South Australia	EL5621	80% (Right to acquire 100%)
South Eagle	South Australia	EL5215	80% (Right to acquire 100%)
Goulds Dam	South Australia	EL5623	80% (Right to acquire 100%)
Katchiwilleroo	South Australia	EL5622	80% (Right to acquire 100%)
Ethiudna	South Australia	EL6020 (previously ELA161/16)	80% (Right to acquire 100%)
Goulds Dam	South Australia	RL83-90	80% (Right to acquire 100%)
Honeymoon Mine	South Australia	ML6109	80% (Right to acquire 100%)

There were no acquisitions during the quarter. The Notttrask Project comprising one tenement (Norrtrask nr.9) in Sweden lapsed during the quarter.

For personal use only